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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/669,715

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Heume Il Baek

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MORGAN LEWIS & BOCKIUS LLP
1111 PENNSYLVANIA AVENUE NW
WASHINGTON, DC 20004

EXAMINER

BECK, ALEXANDER S

ART UNIT

PAPER NUMBER

2629

MAIL DATE

DELIVERY MODE

05/28/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/669,715	Applicant(s) BAEK, HEUME IL	
	Examiner Alexander S. Beck	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Acknowledgment is made of the amendment filed Feb. 28, 2008 ("Amend."), in which: claims 1 and 9 are amended; claim 6 is cancelled; and the rejections are traversed. Claims 1-5 and 7-17 are currently pending and an Office action on the merits follows.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claim 9 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,222,512 to Tajima et al. ("Tajima").

As to claim 9, Tajima discloses a driving method of a liquid crystal display (e.g., an intra-frame time-division multiplexed liquid crystal display), which is driven by a frame divided into first and second fields (e.g., a plurality of sub-frames) (Tajima, col. 12, ll. 19-46). The method comprises the step of implementing a first picture for the first field (e.g., a first sub-frame associated with a first luminance level is displayed) (Tajima, col. 12, ll. 19-46). The method also comprises implementing a second picture (e.g., a second sub-frame associated with a second luminance level) including a first area and a second area for the second field (e.g., any two areas inherently included in a sub-frame) (Tajima, col. 12, ll. 19-46). Furthermore, the second picture for the second field has a different brightness level in accordance with a type of image display than a brightness level of the first picture for the first field (e.g., the second sub-frame associated with a second luminance level is different from the first luminance level, therefore the second

picture is a higher luminance level sub-frame image than the first sub-frame image having the first luminance level) (Tajima, col. 12, ll. 19-46).

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 1-5, 7, 8, 10 and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admission of prior art ("AAPA") in view of U.S. Patent No. 5,936,608 to Springer ("Springer"), U.S. Patent No. 6,778,160 to Kubota et al. ("Kubota") and U.S. Patent No. 6,697,250 to Kuo ("Kuo").

As to claims 1 and 7, AAPA discloses a liquid crystal display in Figures 1 and 2, comprising: a liquid crystal display panel (AAPA, 6) having a liquid crystal cell (AAPA, Clc) at each intersection area of gate lines (AAPA, GLm) and data lines (AAPA, DLn); an interface part (AAPA, 2) for receiving the data provided by a computer (AAPA, 12); a timing controller (AAPA, 4) realigning the data; a data driver (AAPA, 8) supplying the realigned data to the data lines; and a gate driver (AAPA, 10) supplying a scan pulse to the gate lines (AAPA, ¶¶ 3-10).

AAPA does not disclose expressly the computer providing data and position data for a specific area; a video processor for generating processed data for the specific area from the position data and the data such that the brightness level of the processed data for the specific area is different than the brightness level of the data; a memory temporarily storing the processed data; the timing controller realigning the processed data; the data driver supplying the processed data to the data lines; or a position designator designating the specific area of the liquid crystal display panel where the processed data is implemented.

Springer discloses a computer (Springer, 100) in Figure 2 for providing data and position data for a specific area of a display panel (Springer, 80) (wherein position data is inherently suggested in the addressing of images to be displayed); a video processor (Springer, 150) for generating processed data for the specific area from the position data and the data such that the brightness level of the processed data for the specific area is different/higher than the brightness level of the data; a memory (Springer, 155) temporarily storing the processed data; and a position designator (Springer, 145) designating the specific area of the liquid crystal display panel where the processed data is implemented (Springer, col. 4, l. 29 – col. 5, l. 42; see also col. 6, ll. 15-34).

In order to establish obviousness under 35 U.S.C. 103, it must appear that state of relevant prior art was such that claimed invention would have been obvious to one of ordinary skill in the art. In judging the “ordinary level of skill” in the art, it is the level of skill of those who normally attack the problems of the art that counts, and those who do most of the problem solving in the art involved are graduate engineers; as such they are chargeable with certain general knowledge concerning the principles of engineering, outside the narrow field involved, and with the skills, ingenuity and competence of the average professional engineer. *Mueller Brass Co. v. Reading Industries, Inc.*, 176 U.S.P.Q. 361,369 (E.D.Pa., 1972).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the teachings of AAPA such that the computer comprised the video processor, memory and position designator of Springer for generating processed data for a specific area from position data and image data such that the brightness level of the processed data for the specific area is different than the brightness level of the data, as taught/suggested by Springer, wherein the data is applied to the display panel through the timing controller and data drivers, as taught/suggested by AAPA. The suggestion/motivation for doing so would have been because increasing the brightness of selective visual objects on a display with respect to other visual objects will

highlight which control or application area the computer system user is currently focused on, and therefore enhance both information management and user interaction (Springer, col. 2, ll. 44-61).

While the cited portion of Springer above is applicable to an electron beam flat panel display monitor (Springer, col. 5, ll. 49-52), Springer does not disclose expressly wherein it is applicable to a liquid crystal display as claimed. However, it would have been within the purview of one of ordinary skill in the art that the selective brightness control method above is not limited to the display technology disclosed in Springer, but may be applied to liquid crystal displays as well. For example, Kubota discloses a method of selectively varying the brightness of arbitrary and different pixels in a liquid crystal display by changing a grayscale value associated with each pixel (Kubota, Fig. 7; see also col. 10, l. 58). Thus, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to further modify the teachings of AAPA and Springer such that the brightness adjustment of various pixels in a liquid crystal display was achieved through grayscale data modification, as taught/suggested by Kubota. The suggestion/motivation for doing so would have been to adjust the brightness of select pixels in a display when separate light sources are not provided for each pixel.

While the cited portion of Springer above discloses the claimed components (e.g., video processor 150, memory 155, position designator 145) in a computer (Springer, 100), Springer does not disclose expressly wherein these claimed components are comprised in a liquid crystal display as claimed. Kuo discloses a liquid crystal display computer wherein a computer and liquid crystal display are integrated together, and the computer therefore being comprised in the liquid crystal display (Kuo, Fig. 1; see also col. 3, ll. 17-25). Thus, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to further modify the teachings of AAPA, Springer and Kubota such that the liquid crystal display and computer were integrated together such that the computer was provided within the liquid crystal display, as taught/suggested

by Kuo. As such, each and every device claimed above is provided within the liquid crystal display. The suggestion/motivation for doing so would have been to realize a more compact personal computing system with a display, as one of ordinary skill in the art would appreciate.

As to claim 2, Springer further discloses wherein the position designator (145) designates the specific area in accordance with a program in a computer system (Springer, col. 4, l. 29 – col. 5, l. 42; see also col. 6, ll. 15-34).

As to claim 3, Springer further teaches/suggests wherein the memory (155) temporarily stores position data for the specific area. This teaching is inherently suggested in the disclosure of Springer given that the modified display data corresponding to visual objects at an increased brightness are stored in the memory (Springer, col. 4, l. 29 – col. 5, l. 42; see also col. 6, ll. 15-34).

As to Claim 4, neither AAPA, Springer, Kubota nor Kuo discloses expressly wherein the video processor is comprised of a multiplexor. However, the examiner takes Official Notice that the use of multiplexing circuitry in video processors is old and well known in the art. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to further modify the teachings of AAPA, Springer, Kubota and Kuo such that the video processor comprised of a multiplexor. The suggestion/motivation for doing so would have been because incorporating a multiplexor into a video processor would significantly reduce the cost production, as a multiplexor enables multiple sources of data to be transmitted over a single channel (versus providing a dedicating channel for each source of data), as one of ordinary skill in the art would appreciate.

As to claim 5, all of the claim limitations have already been discussed and met by AAPA, Springer, Kubota and Kuo, as detailed in the above paragraphs with respect to claims 1 and 7.

As to claims 10 and 14, AAPA as modified by Springer, Kubota and Kuo teaches/suggests wherein the memory is connected between the video processor and a timing controller (AAPA, Fig. 1) (Springer, col. 4, l. 60 – col. 5, l. 8). For example, as noted in the above discussion with respect to claims 1 and 7, the interface part of AAPA comprising the video processor, memory and position designator of Springer connects with the timing controller (4) for sequentially displaying data on the panel (6).

6. Claims 11-13 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA, Springer, Kubota and Kuo as applied to claims 1-8, 10 and 14 above, and further in view of Tajima.

As to claims 11-13 and 15-17, Springer further discloses wherein the memory (155) stores data and processed data to display an image on the display panel (Springer, col. 4, l. 29 – col. 5, l. 42; see also col. 6, ll. 15-34). Neither AAPA, Springer, Kubota nor Kuo disclose expressly wherein a frame of image data stored in the memory includes at least two fields; wherein each of the two fields correspond to a different brightness level; or wherein at least one of the two fields stores black data, except for a specific area having a different brightness level.

Tajima discloses a liquid crystal display device comprising a memory (71), wherein a frame of image data stored in the memory includes at least two fields; wherein each of the two fields correspond to a different brightness level; or wherein at least one of the two fields stores black data, except for a specific area having a different brightness level (Tajima, col. 12, ll. 19-46). At the time the invention was made, it would have been

obvious to a person of ordinary skill in the art to further modify the teachings of AAPA, Springer, Kubota and Kuo such that the frame memory stored first and second fields corresponding to a single frame of image data, as taught/suggested by Tajima. The suggestion/motivation for doing so would have been to achieve a display device that prevents prominent image defects, such as flicker, and affords a high-quality image display (Tajima, Abstract).

Response to Arguments

7. Applicant's arguments filed Feb. 28, 2008, have been fully considered but they are not persuasive.

8. As to claim 9, applicant argues that Tajima fails to teach at least implementing a second picture including a first area and a second area for the second field, wherein the second picture for the second field has a different brightness level in accordance with a type of image display than a brightness level of the first picture for the first field (Amend., p. 7). However, examiner respectfully submits that Tajima does disclose implementing a second picture including a first area and a second area for the second field (Tajima, col. 12, ll. 19-46). This limitation, given is broadest reasonable interpretation, requires that the second sub-frame to have at least two areas, which is inherently included (e.g., top half and bottom half, left half and right half, etc). The claim is absent any language that would preclude such a broad interpretation when applying prior art such as Tajima. Furthermore, examiner respectfully submits that Tajima discloses wherein the second picture for the second field has a different brightness level in accordance with a type of image display than a brightness level of the first picture for the first field (e.g., the second sub-frame associated with a second luminance level is different from the first luminance level, therefore the second picture is a higher

luminance level sub-frame image than the first sub-frame image having the first luminance level) (Tajima, col. 12, ll. 19-46).

9. As to claim 9, applicant argues that Tajima relates to a Plasma Display Panel, especially an intraframe time-division multiplexing type Plasma Display Panel, and therefore fails to disclose at least a driving method of a liquid crystal display as claimed (Amend., p. 7). However, examiner respectfully submits that the teachings of Tajima may be fundamentally applied to a liquid crystal display which utilizes an intraframe time-division multiplexing method (Tajima, col. 37, ll. 59-62).

10. As to claim 1, applicant argues that the VSP 150 of Springer is equipped on the main board of computer system 100, not monitor 80 (Amend., p. 8). Applicant argues that the graphic controller 145 of Springer is equipped on the main board of the computer system 100, not in the CRT display device 80 (Amend., p. 8). Examiner acknowledges applicant's argument that Springer fails to disclose the claimed "video processor" (e.g., 150 of Springer) and "position designator" (e.g., 145 of Springer) within the actual display, and agrees with the same. As applicant has noted above, these elements are equipped on the main board of the computer system 100 of Springer. However, reference Kuo is made of record as disclosing a liquid crystal display computer, wherein the motherboard and computer is provided within the liquid crystal display (Kuo, Fig. 1; see also col. 3, ll. 17-25). Thus, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to further modify the teachings of AAPA, Springer and Kubota such that the liquid crystal display and computer were integrated together such that the computer was provided within the liquid crystal display, as taught/suggested by Kuo. As such, each and every device claimed above is provided within the liquid crystal display. The suggestion/motivation for doing so would have been

to realize a more compact personal computing system with a display, as one of ordinary skill in the art would appreciate.

11. As to claim 7, applicant argues that the Springer does not include at least a timing controller for rearranging the processed data and the VSP 150 in Springer does not communicate with a timing controller in monitor 80 (Amend., pp. 8-9). However, examiner respectfully submits that the references taken collectively would have fairly suggested, to one of ordinary skill in the art, the claimed invention.

For example, AAPA discloses a liquid crystal display in Figures 1 and 2, comprising: a liquid crystal display panel (AAPA, 6); an interface part (AAPA, 2) for receiving the data provided by a computer (AAPA, 12); a timing controller (AAPA, 4) realigning the data; and a data driver (AAPA, 8) supplying the realigned data to the data lines (AAPA, ¶¶ 3-10). Furthermore, Springer discloses a computer (Springer, 100) in Figure 2 for providing data and position data for a specific area of a display panel (Springer, 80); and a video processor (Springer, 150) for generating processed data for the specific area from the position data and the data such that the brightness level of the processed data for the specific area is different/higher than the brightness level of the data (Springer, col. 4, l. 29 – col. 5, l. 42; see also col. 6, ll. 15-34).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the teachings of AAPA such that the computer comprised the video processor of Springer for generating processed data for a specific area from position data and image data such that the brightness level of the processed data for the specific area is different than the brightness level of the data, as taught/suggested by Springer, wherein the data is applied to the display panel through the timing controller and data drivers, as taught/suggested by AAPA. The suggestion/motivation for doing so would have been because increasing the brightness of selective visual objects on a display with respect to other visual objects will highlight

which control or application area the computer system user is currently focused on, and therefore enhance both information management and user interaction (Springer, col. 2, ll. 44-61).

Moreover, it would have been within the purview of one of ordinary skill in the art that the selective brightness control method above is not limited to the display technology disclosed in Springer, but may be applied to liquid crystal displays as well. For example, Kubota discloses a method of selectively varying the brightness of arbitrary and different pixels in a liquid crystal display by changing a grayscale value associated with each pixel (Kubota, Fig. 7; see also col. 10, l. 58). Thus, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to further modify the teachings of AAPA and Springer such that the brightness adjustment of various pixels in a liquid crystal display was achieved through grayscale data modification, as taught/suggested by Kubota. The suggestion/motivation for doing so would have been to adjust the brightness of select pixels in a display when separate light sources are not provided for each pixel.

Thus, examiner respectfully submits that the references taken collectively suggest that the VSP 150 in Springer be in communication with the timing controller of AAPA because the VSP 150 in Springer processes video signals prior to displaying and the timing controller of AAPA receives video signals to be displayed, which are then sent to a data driver for displaying. VSP 150 and timing controller are in communication for the purpose of transmitting processed video signals to be displayed.

12. It is believed that all of applicant's arguments are addressed in the above remarks.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander S. Beck whose telephone number is (571)272-7765. The examiner can normally be reached on M-F, 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sumati Lefkowitz/
Supervisory Patent Examiner, Art Unit 2629

asb
May 21, 2008